

## Ending Open Defecation: A Review of Community-Led Sanitation Programs

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Nearly two decades ago, Kamal Kar, a consultant in Bangladesh, pioneered an approach to curb a common practice in that country's rural areas: defecating in the open, in fields and lanes and on beaches.<sup>1</sup> Kar's approach, called community-led total sanitation (CLTS), soon came to be implemented not just across Bangladesh<sup>1</sup> but also in more than 50 countries around the world<sup>2</sup> where approximately 900 million people still defecate in the open.<sup>3</sup> Communities that practice open defecation are at higher risk for diarrheal illnesses,<sup>4</sup> parasitic worm infections,<sup>5</sup> and possibly childhood stunting.<sup>6</sup> A systematic review in *Environmental Health Perspectives* takes stock of the expansion of CLTS as an intervention and assesses its impact.<sup>7</sup>

"This approach really took off in a rapid way and got scaled up largely because it was so different from what was being done prior to this," says review coauthor Vidya Venkataramanan, a postdoctoral fellow at the Center for Water Research and Department of Anthropology at Northwestern University. Rural sanitation programs had long focused on educating people about health and hygiene, and on building free or government-subsidized latrines, which sometimes went unused because of ingrained habits and social mores.<sup>8</sup> Venkataramanan explains that the participatory approach of CLTS instead attempts to motivate behavior change by harnessing the shock value of talking about open defecation.

Through the CLTS approach, facilitators work with community members to map houses, stores, fields, and areas where people defecate, and then confront them with the reality that human feces covers the entire community. Visits to open defecation sites are used to trigger visceral responses of disgust. "In my own observations of a handful of 'triggering events' in different countries, the feeling of disgust is universal, but the desire to do something about it is not necessarily so," says Venkataramanan.

The goal of these triggering events is to motivate community members to change their behavior and construct latrines—without individual subsidies—for the entire community. The intervention culminates in the community being certified as "open defecation free" by the implementing nongovernmental organization or by the local government.<sup>1</sup>

Until recently, there had been few evidence-based studies of the impact of CLTS on improving sanitation or health outcomes. "I think it has been a huge problem," says Amy Pickering, an assistant professor of civil and environmental engineering at Tufts University. Pickering, who was not involved with the new review, worked on a cluster randomized controlled trial (RCT) of a CLTS program in Mali, the results of which were published in 2015.<sup>9</sup> "When we published the Mali CLTS trial, at that time I was surprised that there had been no other randomized controlled trials to evaluate the health impacts of CLTS and very few rigorous



During a randomized controlled trial of the health impacts of community-led total sanitation, a community facilitator led a "triggering event" in a village in Mali. Image: © Amy Pickering/Tufts University.

trials to evaluate the actual increase in access to sanitation and behavior change,” she says.

Even though evidence-based studies are lacking, there is an ocean of “gray literature,” often nonpeer-reviewed case studies and project-based reports written by practitioners in the field or by organizations such as the United Nations Children’s Fund. The authors of the review decided to include gray literature in their assessment and developed a framework to evaluate the documents on the basis of the quality of the reporting, the risk of bias, and the appropriateness of the conclusions that each drew. “We wanted to make the case that if most of the literature and most of the guidance people are using comes from this gray literature, ignoring it would miss out on what policy makers and practitioners are using to make their decisions,” Venkataramanan explains.

Recognizing the contributions of different study types to the evidence base, the authors rated the quality of quantitative evaluations, qualitative studies, and case studies/project reports separately, and they offer suggestions to practitioners and researchers on how to improve the quality of each study type. In all, the review included 200 documents from the peer-reviewed and gray literature. Of these, 157 were case studies, 29 were qualitative studies, and 14 were quantitative evaluations.

The authors found huge variation in study quality and in CLTS experiences. “CLTS has shown a surprising and magnificent effectiveness in some places, but there are other places where it shows absolutely no effect,” says review coauthor Jonny Crocker, a senior fellow at the University of Washington’s Department of Global Health. A qualitative thematic analysis of the literature turned up 43 factors that positively or negatively affected the success of a CLTS intervention—from the community’s climate (for instance, frequency of flooding) to policies about linked sanitation subsidies to problems with monitoring and enforcement. The analysis also showed that practitioners were constantly adapting the CLTS approach based on the local culture.

Jamie Myers, research officer for the CLTS Knowledge Hub at the Institute of Development Studies at the University of Sussex, says it is good that the authors included the gray literature, but he challenges the idea that RCTs are inherently more rigorous. “Evidence-based research does not necessarily mean an RCT,” says Myers. “[For] a lot of these changes in sanitation behavior, you really need more qualitative research to actually understand what is going on rather than just numbers, which often do not tell

you the full picture, particularly when something is as complex and challenging as ending open defecation.”

Venkataramanan says that the review is an attempt to bridge the divide between researchers and practitioners so that together they can identify more relevant research questions. And instead of considering CLTS a “silver bullet,” she says, practitioners can target communities where CLTS is most likely to make a difference.

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